

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RONALD SCOTT BUNKER

Appeal 2007-0285
Application 10/064,808
Technology Center 1700

Decided: December 21, 2006

Before KIMLN, PAK, and JEFFREY T. SMITH, *Administrative Patent Judges*.

KIMLN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-31, 40, and 41.

Claim 1 is illustrative:

1. A fuel cell assembly comprising:
a housing having an inlet and an outlet and defining at least one bypass flow channel, said bypass flow channel being configured to be in fluid communication with said inlet, said inlet and outlet being configured to provide fluid communication to and from said housing, respectively;

at least one fuel cell stack disposed within said housing and defining at least one direct flow channel, said at least one fuel cell stack comprising at least one fuel cell, and said direct flow channel being configured to be in fluid communication with said inlet and outlet; and

a control system, which is configured to control an oxidant flow from said inlet to said direct and bypass flow channels.

The Examiner relies upon the following references as evidence of obviousness:

| | | |
|-----------|-----------------|---------------|
| Scheffler | US 4,859,545 | Aug. 22, 1989 |
| Spaeh | US 5,688,610 | Nov. 18, 1997 |
| Gillett | US 6,764,784 B2 | Jul. 20, 2004 |
| Buswell | EP 0,374,368 | Jun. 27, 1990 |
| Masahiro | JP 07-249419 | Sep. 26, 1995 |
| Asano | JP 09-223512 | Aug. 26, 1997 |
| Katsukuni | JP 10-255827 | Sep. 25, 1998 |

Appellant's claimed invention is directed to a fuel cell assembly comprising at least one fuel cell stack disposed within a housing having an inlet and an outlet which define at least one bypass flow channel. Also, the fuel cell stack defines at least one direct flow channel that is in fluid communication with the inlet and outlet of the housing. In addition, the assembly comprises a control system that controls an oxidant flow from the inlet to the direct and bypass flow channels. According to Appellant, "the thermal management system is configured to monitor a parameter value, such as temperature, compare the parameter value with a predetermined parameter value and generate a feedback signal output for actuating flow regulator 250" (Br. 3, third paragraph).

The appealed claims stand rejected under 35 U.S.C. § 103(a) as follows:

(a) claims 1-4, 9, 12, 13, 21-23, 25, 40, and 41 over JP '827 in view of Spaeh;

(b) claims 5 and 6 over JP '827 in view of Spaeh and JP '419;

(c) claims 7 and 8 over JP '827 in view of Spaeh, JP '419, and the admitted prior art;

(d) claims 14 and 15 over JP '827 in view of Spaeh and EP '368;

(e) claim 16 over JP '827 in view of Spaeh and Scheffler;

(f) claims 17, 19, and 20 over JP '827 in view of Spaeh and the admitted prior art;

(g) claim 18 over JP '827 in view of Spaeh, the admitted prior art, and EP '368;

(h) claims 26, 27, 30, and 31 over JP '827 in view of Spaeh, the admitted prior art, and EP '368;

(i) claims 28 and 29 over JP '827 in view of Spaeh, the admitted prior art, EP '368, and JP '512; and

(j) claims 10, 11, and 24 over JP '827 in view of Spaeh and Gillett.

We have thoroughly reviewed each of Appellant's arguments for patentability. However, we are in complete agreement with the Examiner's reasoned analysis and application of the prior art, as well as his cogent and thorough disposition of the arguments raised by Appellant. Accordingly, we

will adopt the Examiner's reasoning as our own in sustaining the rejections of record, and we add the following for emphasis only.

JP '827, like Appellant, discloses a fuel cell assembly comprising at least one bypass flow channel and at least one direct flow channel, as well as a control system which controls the flow of oxidant from the inlet to the direct and bypass flow channels. We appreciate that the configuration of these elements in Appellant's drawings is different than the configuration set forth in JP '827. However, the claims on appeal do not reflect such a configurational distinction. We agree with the Examiner that the only distinction between the claimed fuel cell assembly and the fuel cell assembly disclosed by JP '827 is the claimed housing. However, we agree with the Examiner that the reference disclosure that the fuel and oxidant gas are supplied from the outside would have suggested the incorporation of a housing around the fuel cell assembly of JP '827, particularly in view of Spaeh's disclosure of a housing around a fuel cell assembly for providing thermal insulation and a leakproof environment in order to improve the overall efficiency of the fuel cell assembly. Inasmuch as it is quite conventional in a wide variety of arts to include a housing around an operating assembly for a number of reasons, such as safety, we are convinced it would have been prima facie obvious for one of ordinary skill in the art to provide a housing around the fuel cell assembly of JP '827.

The thrust of Appellant's argument is that it would not have been obvious for one of ordinary skill in the art to modify the system of JP '827 in

order to incorporate the features of Spaeh, for example, Spaeh's supply air being freely guided to the fuel cell stacks within the enclosure. Appellant contends that "Spaeh teaches away from the use of a direct flow channel configured to be in flow communication with the inlet and outlet, as recited by Claim 1" (Br. 9, first paragraph). However, it is fundamental that it is not necessary for a finding of obviousness under § 103 that all the elements or teachings of one reference be fully combined, or incorporated with, those of another reference. *In re Griver*, 354 F.2d 377, 381, 148 USPQ 197, 200 (CCPA 1966); *In re Billingsley*, 279 F.2d 689, 691, 126 USPQ 370, 372 (CCPA 1960). The proper inquiry is what the references, taken collectively, would have suggested to one of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 426, 208 USPQ 871, 882 (CCPA 1981). In the present case, the Examiner expressly states that Spaeh "has been relied upon **solely** for its teaching in Figures 1 and 2 that it is known in the art to enclose a fuel cell stack in a housing having an inlet and an outlet, the inlet and outlet configured to provide fluid communication to and from the housing" (Answer, 18 and 19). In our view, one of ordinary skill in the art would have found it obvious to employ a housing for the fuel cell assembly of JP '827 to secure the assembly, as well as the surrounding environment, from contamination, in addition to the reasons set forth by the Examiner.

Appellant maintains that "the Examiner has pointed to no teaching in JP 10-255827 of at least one direct flow channel that is defined by at least one fuel cell stack, where the direct flow channel is configured to be in fluid

communication with an inlet and outlet of a housing, as recited by Claim 1” (Br. 8, penultimate paragraph). It is not clear whether Appellant is arguing that JP ‘827 fails to show at least one direct flow channel defined by a fuel stack, or whether Appellant is arguing that the reference does not show the channel in fluid communication with an inlet and an outlet of a housing. Manifestly, the totality of Appellant’s sentence is accurate since JP ‘827, as recognized by the Examiner, fails to show a housing. As for the direct flow channel defined by at least one fuel cell stack, we agree with the Examiner that the reference drawings clearly depict direct flow channels for fuel and oxidant through valves 61 and 71, respectively, and then through flow channels directly through the fuel cell stack.

Appellant also maintains that:

[I]t is not clear to Appellant whether replacing the oxidizing gas bypass valve 9 of JP 10-255827 with the guiding of supply air to the fuel cell stacks within the enclosure of Spaeh would render the resulting combination unsuitable for the purpose of JP 10-255827, namely stopping power generation in a fuel cell for which an abnormality is detected.

(Br. 9, second paragraph). However, Appellant’s argument misses the thrust of the Examiner’s rejection. As explained by the Examiner, the rejection under § 103 is not predicated upon modifying the system of JP ‘827 to incorporate the specific features of Spaeh. Rather, Spaeh is cited simply as evidence for the obviousness of providing the system of JP ‘827 with a housing.

Concerning the separately argued independent and dependent claims, we concur with the rationale set forth by the Examiner in the Answer. Suffice it to say that we find that the Examiner has established the prima facie obviousness of utilizing the control sensor of JP '419 to monitor the temperature, the invasive and non-invasive temperature sensors of the admitted prior art, the pressurized housing of EP '368, and providing oxidant flow via any piping or ducts (Gillett, col. 5, ll. 51-65) and thermal insulation (Gillett, col. 7, ll. 7-14).

As a final point, we note that Appellant bases no argument upon objective evidence of nonobviousness, such as unexpected results, which would serve to rebut the prima facie case of obviousness established by the Examiner.

In conclusion, based on the foregoing and the reasons well stated by the Examiner, the Examiner's decision rejecting the appealed claims is affirmed.

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Application 10/064,808

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2004).

AFFIRMED

clj

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